

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (currently amended) A device for producing images of an object ~~(5)~~ that is subject to a cyclic spontaneous movement and for controlling an injection rate of a contrast agent in a vascular system of the object, comprising:

- a) an X-ray unit ~~(4)~~ for producing a series of two-dimensional projected pictures of the object ~~(5)~~;
- b) a measuring device ~~(4, 7)~~ for determining a parameter characteristic of the spontaneous movement of the object ~~(5)~~;
- c) a data processing device ~~(10)~~ that is coupled to the X-ray unit ~~(4)~~ and the measuring device ~~(4, 7)~~ and that is designed to drive the X-ray unit ~~(4)~~ as a function of the a particular value of the ~~spontaneous movement~~ characteristic parameter in such a way that, during a predetermined movement phase to be displayed ~~corresponding to a movement phase of greatest movement~~, pictures are taken of the object ~~(5)~~ with a higher X-ray exposure rate and/or picture-taking rate than during the other movement phases;
- d) an injection pump for injecting the contrast agent at a controllable injection rate;
- e) a measuring device for determining a parameter characteristic of a flowrate in the vascular system; and
- f) a control unit that is coupled to the injection pump and the flowrate parameter characteristic measuring device, the control unit configured to drive the injection pump as a function of a particular value of the characteristic parameter in such a way that (i) the contrast agent follows a predetermined concentration pattern in the vascular system, (ii) the injection rate of the contrast agent is matched to instantaneous flow conditions in the vascular system, and (iii) a total amount of contrast agent injected is limited to a necessary minimum, the necessary minimum being defined by the

predetermined concentration pattern, the predetermined concentration pattern further being specified to produce a constant contrast display of the vascular system while pictures are being taken of the object during a duration of the contrast agent injection.

2. (currently amended) A device as claimed in claim 1, characterized in that the data processing device ~~(10)~~ is designed to adjust the picture-taking rate, ~~the~~ X-ray pulse duration, ~~the~~ tube current and/or ~~the~~ tube voltage of the X-ray unit ~~(1)~~.

3. (currently amended) A device as claimed in claim 1, characterized in that the object is a heart ~~(5)~~.

4. (canceled).

5. (canceled).

6. (currently amended) A device as claimed in claim 1, characterized in that the spontaneous movement characteristic parameter measuring device is an electrocardiograph apparatus ~~(4, 7)~~.

7. (canceled).

8. (currently amended) A method of producing an image of an object ~~(5)~~ that is subject to cyclic spontaneous movement and for controlling an injection rate of a contrast agent in a vascular system of the object, the method comprising: ~~the steps of~~

- a) producing a series of projected X-ray pictures of the object ~~(5)~~;
- b) measuring a parameter characteristic of the spontaneous movement of the object;
- c) controlling ~~the~~ an X-ray exposure rate and/or ~~the~~ a picture-taking rate as a

function of ~~the~~ a particular value of the spontaneous movement characteristic parameter in such a way that the X-ray exposure rate and/or the picture-taking rate is higher during a predetermined movement phase, to be displayed corresponding to a movement pahse of greatest movement of the object than during the other movement phases of the object;

d) injecting the contrast agent at a controllable injection rate with an injection pump;
e) measuring a parameter characteristic of a flowrate in the vascular system; and
f) controlling the injection pump as a function of a particular value of the characteristic parameter in such a way that (i) the contrast agent follows a predetermined concentration pattern in the vascular system, (ii) the injection rate of the contrast agent is matched to instantaneous flow conditions in the vascular system, and (iii) a total amount of contrast agent injected is limited to a necessary minimum, the necessary minimum being defined by the predetermined concentration pattern, the predetermined concentration pattern further being specified to produce a constant contrast display of the vascular system while pictures are being taken of the object during a duration of the contrast agent injection.

9. (canceled).

10. (canceled).

11. (new) The method of claim 8, characterized in that controlling the X-ray exposure rate and/or picture-taking rate comprises adjusting the picture-taking rate, X-ray pulse duration, tube current and/or tube voltage of an X-ray unit configured to implement the method.

12. (new) The method of claim 8, characterized in that the object is a heart.

13. (new) The method of claim 8, characterized in that the spontaneous movement characteristic parameter is an electrocardiograph measurement.